AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method ~~Method~~ for biomechanical simulation of a set of bone joints in a patient, and particularly the spine, comprising:

——a step in which a computer processes a three-dimensional digital model, at least partly represented by rigid bodies connected by joints, is recorded in a reference position;

——a step to ~~personalise~~personalize the geometry of the said model, using data specific to a patient in the said reference position;

——a step to ~~personalise~~personalize the said digital model by ~~particularisation~~particularization of interaction parameters of each joint connecting the said rigid bodies as a function of characteristics observed on the patient~~,~~;

~~characterised in that~~

the step ~~to particularise~~particularizing the interaction parameters ~~consists of~~ comprising:

_____——acquiring the positions in space of at least a part of the rigid bodies, and making an interpolation to determine the calculated position of other rigid bodies to build up a digital table containing the relative positions of each rigid body;

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_____ —determining and applying at least one determined constraint of a set of constraints on the patient and acquiring information about the resultant general equilibrium position of the patient; and

_____ —determining a mobility or global stiffness resulting from an action analytic functions to approximate interaction parameters in order to reproduce the measured relative positions, forof each pair of rigid bodies to produce approximate interaction parameters in order to reproduce the measured relative positions; and

a correction step making radiograph image data and external acquisition data correspond, the correction step comprising:

_____ correct the radiograph reconstruction relative to the 3D curve derived from external acquisition data in the same position; and

_____ determine the distribution of points in the 3D curve associated with the vertebras, positioned in the Stokes coordinate system and their associated tangent.

2. (currently amended) The method Method for biomechanical simulation of a set of bone joints according to claim 1, characterised in that wherein the digital model is defined by geometric position parameters of the rigid bodies and by stiffness parameters of the joints connecting the rigid bodies.

3. (currently amended) <u>The method</u> ~~Method~~ for biomechanical simulation of a set of bone joints according to claim 1, ~~characterised in that~~ <u>wherein</u> the step ~~representing the result of a constraint~~ <u>determining and applying</u> consists of recalculating the ~~personalised~~ <u>personalized</u> model resulting from a set of constraints comprising at least one static constraint applied on at least two rigid bodies, and imposing a relative position with a mobility or stiffness different from that corresponding to the ~~behavioural~~ <u>behavioral</u> law.

4. (currently amended) <u>The method</u> ~~Method~~ for biomechanical simulation of a set of bone joints according to claim 1, ~~characterised in that~~ <u>wherein</u> the step recording the digital model of the set of standard joints consists of defining an alternation of rigid bodies and joints, and for each pair of bodies defining a set of digital parameters ~~characterising~~ <u>characterizing</u> the mobility or the global stiffness resulting from the action of all ~~insertion elements~~<u>the rigid bodies</u> and <u>the</u> connecting <u>joints</u> ~~elements~~ that have an effect on the interaction parameters between the two bodies.

5. (currently amended) <u>The method</u> ~~Method~~ for biomechanical simulation of a set of bone joints according to claim 1, ~~characterised in that~~ <u>wherein</u> the ~~personalisation~~ <u>personalization</u> step consists of acquiring at least one image of the set of joints of a given patient, extracting information necessary for construction of a real model from the said image by recognition of the position of joints visible in the said image, and modifying the standard model as a function of the said real model.

6. (currently amended) <u>The method</u> ~~Method~~ for biomechanical simulation of a set of bone joints according to claim 1, ~~characterised in that~~ <u>wherein</u> the step recording a digital model consists of defining a standard set of digital data comprising the following for each joint represented in the form of a rigid body:

——a first geometric reference position descriptor corresponding to the geometry of the set of joints for a "standard" patient in a "reference" position, the said descriptor being determined for each rigid body relative to an adjacent body;

——a second mechanical descriptor interacting with each adjacent body, the said mechanical descriptor being representative of the ~~behavioural~~ <u>behavioral</u> law when at least one external constraint is applied to the set of joints;

the ~~personalisation~~<u>personalization</u> step consisting of modifying the said standard set of data by ~~personalised~~<u>personalized</u> data.

7. (cancelled)

8. (currently amended) The method ~~Method~~ for biomechanical simulation of a set of bone joints according to claim 2, ~~characterised in that~~ wherein the step representing the result of a constraint consists of recalculating the ~~personalised~~ personalized model resulting from a set of constraints comprising at least one static constraint applied on at least two rigid bodies, and imposing a relative position with a mobility or stiffness different from that corresponding to the ~~behavioural~~ behavioral law.

9. (currently amended) The method ~~Method~~ for biomechanical simulation of a set of bone joints according to claim 2, ~~characterised in that~~ wherein the step recording the digital model of the set of standard joints consists of defining an alternation of rigid bodies and joints, and for each pair of bodies defining a set of digital parameters ~~characterising~~ characterizing the mobility or the global stiffness resulting from the action of all the rigid bodies ~~insertion elements~~ and the connecting joints ~~elements~~ that have an effect on the interaction parameters between the two bodies.